Appendix D
Great Lakes National Program Office Data Standard:
Quality Assurance/Quality Control Codes

The following codes are examples of GLNPO's standard codes for QA/QC samples and are available at www.epa.gov/glnpo/glenda/index.html.

GLENDA FIELD REMARK CODES

(Fieldrmk.xls)

Code	Name	Description
ALT	Alternate Method	Sample was obtained using an alternate collection method. This flag alerts data users to read details presented in the sampling method exception text
CONT	Known contamination	Sample is known (i.e., confirmed) to have been contaminated in the field or during transport. Validity of results from this sample may be compromised
FRZN	Freezing	Sample was unintentionally frozen in field or during transport
LOST	Lost/Not Submitted	Sample was taken but either was not submitted for analysis or was lost before being analyzed
SPIL	Spillage/Leakage	Sample spilled or leaked in the field or during transport. Sample was submitted anyway. Validity of results from this sample may be compromised
SUSP	Suspected contamination	Sample is suspected (i.e., but not confirmed) to have been contaminated in the field or during transport. Validity of results from this sample may be compromised
SXBD	Equipment Malfunction	Sampling equipment malfunctioned or did not function as intended
OTHER	Other	Validity of results from this sample may be compromised due to conditions other than presented in this list. This flag alerts data users to read details presented in the field crew comments text

GLENDA LAB REMARK CODES

(Lab_rmrk.xls)

Code	Name	Group	Description	Reporting Instruction Description	Assignor
ALT	Alternate Method	Procedure	Reported value was obtained using an alternate analytic method. Validity of reported value may be compromised	Information about the alternate analytic method used should be provided in the Exception to Method Text	Lab, QC
B5D	Below 5 Times MDL	Other	Reported value is greater than the method detection limit but less than 5 times the method detection limit. Validity of reported value and associated precision statistics (e.g., RPD) may be compromised		Lab, QC
BAC	Correction Factor, background	Corrected	Reported value was corrected for variable background contribution to the instrument signal in the determination of trace elements	The value of the correction factor, if known, should be provided in the Correction Factor table	Lab, QC
BDL	Detection Limit, less than	Limit	Analyte produced an instrument response but reported value is below a detection limit. The type of detection limit was unspecified. Validity of reported value may be compromised		Lab, QC
BLQ	Between Instrument Detection and Quantification	Limit	Reported value is above calculated instrument detection limit but below quantification limit. Validity of reported value may be compromised	Information about limits should be provided in the Project QA/QC Summary	Lab, QC
CAJ	Correction Factor, lab	Corrected	Reported value was corrected by a lab performance check factor	The value of the correction factor, if known, should be provided in the Correction Factor table	Lab, QC
CAN	No Result Reported, analysis canceled	No Result Reported	Analysis was canceled and not performed. No result value was reported	The reason for cancellation should be provided in the Exception to Method Text	Lab, QC
CBC	No Result Reported, cannot be calculated	No Result Reported	Result should have been a calculated value but it could not be determined because an operand value was qualified. No result value was reported		Lab, QC
CBL	Correction Factor, blank	Corrected	Reported value was corrected by a blank correction factor	The value of the correction factor, if known, should be provided in the Correction Factor table	Lab, QC
CCA	Correction Factor, calibration	Corrected	Reported value was corrected by a calibration correction factor	The value of the correction factor, if known, should be provided in the Correction Factor table	Lab, QC
CDI	Correction Factor, dilution	Corrected	Reported value was corrected by a dilution correction factor	The value of the correction factor, if known, should be provided in the Correction Factor table	Lab, QC

GLENDA LAB REMARK CODES

(Lab_rmrk.xls)

Code	Name	Group	Description	Reporting Instruction Description	Assignor
CLC	Correction Factor, other	Corrected	Reported value was corrected. Correction factor was derived by unspecified means or means other than those presented in this list	The value of the correction factor, if known, should be provided in the Correction Factor table. Information about how the correction factor was derived should be provided in the Result Description	Lab, QC
CON	Value Confirmed	Other	Reported value was confirmed by using an auxiliary analytical technique	Information about confirmation technique should be provided in the Analytic Method or the Exception to Method Text	Lab, QC
CSP	Correction Factor, standard pressure	Corrected	Reported value was corrected by a standard pressure correction factor	The value of the correction factor, if known, should be provided in the Correction Factor table	Lab, QC
CST	Correction Factor, standard temperature	Corrected	Reported value was corrected by a standard temperature correction factor	The value of the correction factor, if known, should be provided in the Correction Factor table	Lab, QC
CSU	Correction Factor, surrogate	Corrected	Reported value was corrected by a surrogate correction factor	The value of the correction factor, if known, should be provided in the Correction Factor table	Lab, QC
CTP	Correction Factor, standard temperature and pressure	Corrected	Reported value was corrected by a standard temperature and pressure correction factor	The value of the correction factor, if known, should be provided in the Correction Factor table	Lab, QC
DDL	Daily Detection Limit, less than	Limit	Analyte produced an instrument response but reported value is below the calculated daily detection limit. Validity of reported value may be compromised	Information about detection limits should be provided in the Project QA/QC Summary	Lab, QC
EER	No Result Reported, entry error	No Result Reported	Original value is known to be incorrect due to a data entry error. The correct value could not be determined. No result value was reported		Lab, QC
EHT	Exceeded Holding Time	Handling	Sample or extract was held longer than the approved amount of time before analysis. Validity of reported value may be compromised	The length of time that the sample was held should be provided in the Exception to Method Text	Lab, QC
EST	Estimated Value, outside limit of precision	Estimated Value	Reported value was not within expected limits of precision and is therefore considered an estimate		Lab, QC
FAC	No Result Reported, field accident	No Result Reported	Analysis was halted because a field accident either destroyed the sample or rendered it not suitable for analysis. No result value was reported	Information about the field accident should be provided in the Exception to Method Text	Lab, QC

GLENDA LAB REMARK CODES

(Lab_rmrk.xls)

Code	Name	Group	Description	Reporting Instruction Description	Assignor
FBB	Field Bottle Blank, failed	QC Failed	A field bottle blank associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FBS	Blank Sample, failed	QC Failed	A blank sample associated with this analysis failed the acceptance criteria. It is unknown whether the blank that failed was a field blank or a lab blank. Validity of reported value may be compromised		Lab, QC
FCB	Lab Calibration Blank, failed	QC Failed	A lab calibration blank associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FCC	Continuing Calibration Check, failed	QC Setup	A continuing calibration check associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FCL	Lab Control Solution, failed	QC Failed	A lab control solution associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FCN	Calibration Sample, failed	QC Failed	A calibration sample (type unknown or unspecified) associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FCS	Field Control Solution, failed	QC Failed	A field control solution associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FCV	Coefficient of Variation Limit, failed	Other	Precision, measured as CV between multiple analyses of a sample within and between instrumental analysis runs, did not meet the method criteria. Validity of reported value may be compromised		Lab, QC
FDB	Dry Blank, failed	QC Failed	A dry blank associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FDC	Drift Check, failed	QC Setup	A drift check associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FDL	Lab Duplicate, failed	QC Failed	A lab duplicate associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC

GLENDA LAB REMARK CODES

(Lab_rmrk.xls)

Code	Name	Group	Description	Reporting Instruction Description	Assignor
FFB	Field Matrix Blank, failed	QC Failed	A field matrix blank associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FFD	Field Duplicate, failed	QC Failed	A field duplicate associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FFR	Field Blank, failed	QC Failed	A field blank sample (type unknown or unspecified) associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FFS	Field Spike, failed	QC Failed	A field spike associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FFT	Trip Blank, failed	QC Failed	A trip blank associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FIB	Field Instrument Blank, failed	QC Failed	A field instrument blank associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FIC	Lab Interference Check Sample, failed	QC Failed	A lab interference check sample associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised.		Lab, QC
FIS	Internal Standard, failed	QC Failed	An internal standard associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FKB	Continuing Check Blank, failed	QC Failed	A continuing check blank associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FLA	Field Lab Anomaly	Other	Reported value for lab measurement was inconsistent with reported value for corresponding field measurement. Validity of reported value may be compromised		Lab, QC
FLB	Lab Matrix Blank, failed	QC Failed	A lab matrix blank associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC

GLENDA LAB REMARK CODES

(Lab_rmrk.xls)

Code	Name	Group	Description	Reporting Instruction Description	Assignor
FLC	Linearity Check, failed	QC Setup	A linearity check associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FLR	Lab Blank, failed	QC Failed	A lab blank sample (type unknown or unspecified) associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FLS	Lab Spike, failed	QC Failed	A lab spike associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FMB	Matrix Spike Blank, failed	QC Failed	A matrix spike blank associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FMS	Matrix Spike, failed	QC Failed	A matrix spike associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FNB	Lab Instrument Blank, failed	QC Failed	A lab instrument blank associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FOB	Field Fortified Blank, failed	QC Failed	A field fortified blank associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FPB	Lab Procedural Blank, failed	QC Failed	A lab procedural blank associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FPC	Performance Check, failed	QC Failed	A lab performance check sample associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FPS	Lab Procedural Spike, failed	QC Failed	A lab procedural spike associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FQC	Quality Control, failed	QC Failed	Quality control criteria were exceeded during analysis. Value was not rejected, however. Validity of reported value may be compromised		Lab, QC

GLENDA LAB REMARK CODES

(Lab_rmrk.xls)

Code	Name	Group	Description	Reporting Instruction Description	Assignor
FRB	Field Reagent Blank, failed	QC Failed	A field reagent blank associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FRF	Reference material, failed	QC Failed	A reference sample (type unknown or unspecified) associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FRM	Field Reference Material, failed	QC Failed	A field reference material associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FRN	Lab Reagent Blank, failed	QC Failed	A lab reagent blank associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FRS	Lab Reference, failed	QC Failed	A lab reference associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FSB	Lab Solvent Blank, failed	QC Failed	A lab solvent blank associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FSD	Lab Spike Duplicate, failed	QC Failed	A spiked lab duplicate associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FSF	Surrogate Spike, failed	QC Failed	Surrogate spike recoveries associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FSK	Spike sample, failed	QC Failed	A spike sample (type unknown or unspecified) associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FSL	Lab Spike Blank, failed	QC Failed	A spiked lab blank associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FSP	Lab Solvent Spike, failed	QC Failed	A lab solvent spike associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC

GLENDA LAB REMARK CODES

(Lab_rmrk.xls)

Code	Name	Group	Description	Reporting Instruction Description	Assignor
FSR	Standard Reference Material, failed	QC Failed	A standard reference material associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FSS	Surrogate, failed	QC Failed	Surrogate recoveries associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FTB	Field Filter Blank, failed	QC Failed	A field filter blank associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FUB	Field Tubing Blank, failed	QC Failed	A field tubing blank associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FVS	Lab Calibration Verification Solution, failed	QC Setup	A lab calibration verification solution associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
FWB	Field Source Water Blank, failed	QC Failed	A field source water blank associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC
GTL	Operating Range, greater than	Limit	Reported value is above the valid operating range of the analytical system, quantitative process, or qualitative process, or reported value is above the highest calibration standard. Validity of reported value may be		Lab, QC
HIB	Likely Biased High	Other	Reported value is probably biased high as evidenced by LMS (matrix spike, lab) results, SRM (reference material, standard) recovery, blank contamination or other internal lab QC data. Reported value is not		QC
IDL	Instrument Detection Limit, less than	Limit	Analyte produced an instrument response but reported value is below the calculated instrument detection limit. Validity of reported value may be compromised	Information about detection limits should be provided in the Project QA/QC Summary	Lab, QC
IDS	Analyte Not Confirmed	Other	Identity of analyte could not be confirmed using an alternate technique		Lab, QC
INT	Interference Suspected	Other	Reported value is believed to be the result of interference and not presence of the analyte. Validity of reported value may be compromised		Lab, QC

GLENDA LAB REMARK CODES

(Lab_rmrk.xls)

Code	Name	Group	Description	Reporting Instruction Description	Assignor
INV	Invalid	Other	Reported value is deemed invalid by the QC Coordinator		QC
ISC	Correction Factor, internal standard	Corrected	Reported value was corrected for the internal standard recovery	The value of the correction factor, if known, should be provided in the Correction Factor table	Lab, QC
ISP	Improper Sample Preservation	Handling	Sample was not properly preserved. Validity of reported value may be compromised		Lab, QC
JCN	Sample Container Damaged, no sample lost	Handling	Sample container (jar, test tube, etc.) was damaged but no portion of the sample was lost. Validity of reported value may be compromised		Lab, QC
JCW	Sample Container Damaged, sample lost	Handling	Sample container (jar, test tube, etc.) was damaged. At least a portion of the sample was lost. Validity of reported value may be compromised		Lab, QC
KCA	Known Contamination, lab analysis	Contamination	Contamination is known to have occurred during the laboratory analysis process. Validity of reported value may be compromised	The source of contamination, if known, should be provided in the Exception to Method Text	Lab, QC
KCF	Known Contamination, field	Contamination	Contamination is known to have occurred during the field collection process. Validity of reported value may be compromised	The source of contamination, if known, should be provided in the Exception to Method Text	Lab, QC
KCP	Known Contamination, lab preparation	Contamination	Contamination is known to have occurred during the laboratory preparation process. Validity of reported value may be compromised	The source of contamination, if known, should be provided in the Exception to Method Text	Lab, QC
KCX	Known Contamination, unknown	Contamination	Contamination is known to have occurred but the source of that contamination is unknown. Validity of reported value may be compromised		Lab, QC
LAC	No Result Reported, lab accident	No Result Reported	Analysis was halted because a laboratory accident either destroyed the sample or rendered it not suitable for analysis. No result value was reported	Information about the lab accident should be provided in the Exception to Method Text	Lab, QC
LOB	Likely Biased Low	Other	Reported value is probably biased low as evidenced by LMS (matrix spike, lab) results, SRM (reference material, standard) recovery or other internal lab QC data. Reported value is not considered invalid, however		QC

GLENDA LAB REMARK CODES

(Lab_rmrk.xls)

Code	Name	Group	Description	Reporting Instruction Description	Assignor
LTL	Operating Range, less than	Limit	Reported value is below the valid operating range of the analytical system, quantitative process, or qualitative process, or reported value is less than the lowest calibration standard. Validity of reported value may be		Lab, QC
MBK	Blank, detected below MDL	Other	Analyte was detected in a related lab blank at a concentration below the method detection limit (MDL) and/or blank action limit, however the related lab blank did not fail		Lab, QC
MDL	Method Detection Limit, less than	Limit	Analyte produced an instrument response but reported value is below the calculated method detection limit. Validity of reported value may be compromised	Information about detection limits should be provided in the Project QA/QC Summary	Lab, QC
NAI	No Result Reported, interference	No Result Reported	A valid result could not be obtained from the analysis due to interference. Analysis was halted. No result value was reported	Information about the type of interference should be provided in the Exception to Method Text	Lab, QC
NRR	No Result Reported, other	No Result Reported	Result value was not determined or entered for reasons other than those presented in this list. No result value was reported	The reason the result was not determined or entered should be provided in the Exception to Method Text	Lab, QC
NSQ	No Result Reported, insufficient quantity of sample	No Result Reported	Result value could not be obtained due to insufficient quantity of the sample. No result value was reported		Lab, QC
NWL	Operating Range, not within	Limit	Reported value is outside (above or below not specified) the valid operating range of the analytical system, quantitative process, or qualitative process, or outside the calibration standard. Validity of reported		Lab, QC
OTHER	Other	Other	Validity of reported value may be compromised for reasons other than those presented in this list	The reason the validity of the reported value may be compromised should be provided in the Result Description	Lab, QC
PNQ	No Quantifiable Result Reported	No Result Reported	Analyte was present in the sample but was not quantifiable. No result value was reported		Lab, QC
PPD	Spiked Blank Duplicate, failed	QC Failed	Analysis results showed unacceptable duplicate precision between laboratory prepared spiked blank duplicates. Validity of reported value may be compromised		Lab, QC
REJ	Value Rejected	Other	Reported value was rejected by the laboratory. Value was not utilized in the calculation of any results	The reason that the value was rejected should be provided in the Exception to Method Text	Lab, QC

GLENDA LAB REMARK CODES

(Lab_rmrk.xls)

Code	Name	Group	Description	Reporting Instruction Description	Assignor
REQ	Method Not Approved, re-analyze	Procedure	Analytic method for the reported value was not approved. The sample was re-analyzed using a different method		Lab, QC
RET	Value Not Approved	Other	Reported value is not approved by laboratory management. The sample was re-analyzed with no change in the method. Validity of reported value may be compromised	The reason that the value is not approved should be provided in the Exception to Method Text	Lab, QC
REX	Re-Prepared	Procedure	Reported value was generated from a re-preparation of the same sample		Lab, QC
RIN	Re-Analyzed	Procedure	Reported value was generated from a re-analysis of the same sample extract or aliquot using the same method		Lab, QC
RSL	Resloped	Procedure	Reported value was quantified from a resloped calibration curve during the instrument run		Lab, QC
SCA	Suspected Contamination, lab analysis	Contamination	Contamination is suspected to have occurred during the laboratory analysis process. Validity of reported value may be compromised	The source of contamination, if known, should be provided in the Exception to Method Text	Lab, QC
SCF	Suspected Contamination, field	Contamination	Contamination is suspected to have occurred during the field collection process. Validity of reported value may be compromised	The source of contamination, if known, should be provided in the Exception to Method Text	Lab, QC
SCP	Suspected Contamination, lab preparation	Contamination	Contamination is suspected to have occurred during the laboratory preparation process. Validity of reported value may be compromised	The source of contamination, if known, should be provided in the Exception to Method Text	Lab, QC
SCX	Suspected Contamination, unknown	Contamination	Contamination is suspected to have occurred but the source of that contamination is unknown. Validity of reported value may be compromised		Lab, QC
SDL	System Detection Limit, less than	Limit	Analyte produced an instrument response but reported value is below the calculated system detection limit. Validity of reported value may be compromised	Information about detection limits should be provided in the Project QA/QC Summary	Lab, QC
SFF	Field Spike Blank, failed	QC Failed	A field spike blank associated with this analysis failed the acceptance criteria. Validity of reported value may be compromised		Lab, QC

GLENDA LAB REMARK CODES

(Lab_rmrk.xls)

Code	Name	Group	Description	Reporting Instruction Description	Assignor
TIE	Estimated value, no calibration standard	Estimated Value	Reported value has been estimated because no calibration standard was analyzed		Lab, QC
UDL	Sample-specific Detection Limit, less than	Limit	Analyte produced an instrument response but reported value is below the calculated sample-specific detection limit. Validity of reported value may be compromised	Information about detection limits should be provided in the Project QA/QC Summary	Lab, QC
UNC	Value Not Confirmed	Other	Reported value could not be confirmed by using an auxiliary analytic method (e.g., an alternate GC column). Validity of reported value may be compromised	Information about the confirmation technique should be provided in the Analytical Method or the Exception to Method Text	Lab, QC
UND	Analyte Not Detected	Limit	Analyte produced no instrument response above noise		Lab, QC

GLENDA QC IDs

(Qc_ident.xls)

Code	Name	Description	Purpose	Field or Lab Flag
CAL	Calibration solution	Aliquot of target analyte(s) or reference material of known concentration analyzed using the exact instrument and conditions to analyze routine field samples	To set/calibrate instrument response relative to various concentrations of analyte(s) prior to the laboratory production run	B
CHn	Standard check, high ("n"-th member from lab)	The "n"-th aliquot of solution with known high concentration (e.g.. 80%) of subject analyte. Not carried to field. Analyzed using exact instrument used to analyze routine field samples	To evaluate how closely reported result matches the "known" high value. If not identical, can indicate (1) inaccurate instrumentation at high end of reporting spectrum or (2) possible contamination from lab	L
CLB	Blank check, continuing	Aliquot of reagent water analyzed for background levels of the target analyte(s) using the exact instrument and conditions used to analyze routine field samples. This aliquot will be run several times during the production run	To verify instrument background and/or check for contaminant buildup in the instrument during the production run	B
CLC	Calibration check, continuing	Aliquot of subject analyte(s) or reference material (different source than CAL solution) of known concentration analyzed using the exact instrument used to analyze routine field samples. This aliquot will be run several times during the production run	To verify whether the initial calibration data are still valid at various points in the laboratory production run (i.e., to measure instrument "drift")	B
CLM	Calibration solution, initial of multiple point	Initial aliquot of target analyte(s) or reference material of known concentration analyzed using the exact instrument used to analyze routine field samples. Used when a group of calibrations is required at different levels of target analyte concentrations	To set/determine the initial instrument response during multipoint calibration (i.e., calibration using three or more standards of known, but different, concentrations)	B
CLn	Standard check, low ("n"-th member from lab)	The "n"-th aliquot of solution with known low concentration (e.g.. 20%) of subject analyte. Not carried to field. Analyzed using exact instrument used to analyze routine field samples	To evaluate how closely reported result matches the "known" low value. If not identical, can indicate (1) inaccurate instrumentation at low end of reporting spectrum or (2) possible contamination from lab	L
CLS	Calibration solution, initial of single point	Initial aliquot of target analyte(s) or reference material of known concentration analyzed using the exact instrument used to analyze routine field samples. Used when target analyte concentration will be in a fixed range	To set/determine the initial instrument response during singlepoint calibration (i.e., calibration using a single standard of known concentration)	B
DDLS	Daily detection limit solution	Aliquot of reagent water or other neutral item (resin, filter) analyzed only to calculate daily detection limits of instruments	To calculate daily detection limits	L
FBB	Blank, field bottle	Aliquot of reagent water placed in one empty sample container (e.g., bottle) in the field. Not exposed to any other field activity. Otherwise handled same as routine field sample in all facets of transport and lab analysis.	To isolate and evaluate potential contamination that may have pre-existed in the sample containers prior to filling them with actual samples	F

GLENDA QC IDs

(Qc_ident.xls)

Code	Name	Description	Purpose	Field or Lab Flag
FBS	Blank, field source water	Aliquot of reagent water passed through entire train of sampling equipment before it is used to take routine field sample. Not exposed to any other field activity. Otherwise handled, transported, and analyzed same as routine field sample	To isolate and evaluate potential contamination introduced to samples from entire configuration of sampling gear	F
FBT	Blank, field tubing	Aliquot of reagent water passed through field tubing before it is used to take routine field sample. Not exposed to any other field activity. Otherwise handled, transported, and analyzed same as routine field sample	To isolate and evaluate potential contamination introduced to samples by the sampling line	F
FCM	Control solution, field	Aliquot of reagent water or other neutral item (resin, filter) to which known quantity of target analyte is added in the field. Otherwise handled, transported, and analyzed same as routine field sample	To evaluate how closely reported result matches the "known" value added in field. If not identical, can indicate (1) presence of subject analyte in environment below detection limits or (2) possible contamination from field, transport, or lab	F
FDn	Duplicate, ("n"-th member from field)	The "n"-th duplicate of a routine field sample (RFS). Taken at the SAME TIME and SAME PLACE, using the same gear, and treated same as RFS through all field, transport, and lab procedures	To evaluate field sampling and matrix variability when duplicate samples theoretically contain the same amount of the subject analyte	F
FFB	Blank, field filter	Aliquot of reagent water passed through field filter material before it is used on routine field sample. Not exposed to any other field activity. Otherwise handled, transported, and analyzed same as routine field sample	To isolate and evaluate potential contamination introduced to samples by filter materials used in the field	F
FFM	Blank, field fortified	Aliquot of sample matrix (known to be below detection for target analyte) to which a known concentration of target analyte is added in field. Otherwise handled, transported, and analyzed same as routine field sample	To enable detection/quantification of subject analyte by raising the "known" amount in the sample above detection/quantification limits	F
FMB	Matrix blank, field	Unexposed sample collection medium (e.g., dry deposition plate) carried to field and left unexposed for the duration of sampling event. Otherwise handled, transported, and analyzed same as routine field samples	To evaluate contamination from the sampling medium, field collection activities, and transportation practices	F
FRB	Blank, field reagent	Aliquot of reagent water or other neutral item (resin, filter) containing all reagents, preservatives, solvents, standards used to process routine field sample. Handled, transported, and analyzed same as routine field sample	To identify and/or evaluate potential contamination introduced to samples from any source in the field, during transport, or in the laboratory	F
FRM	Reference material, field	Aliquot containing a certified value of the target analyte (aliquot usually from NIST). Not exposed to any field conditions, equipment, or additives. Sent to lab from field crew. Handled, transported, and analyzed same as routine field sample	To evaluate how closely lab reported result matches the "certified" value. If not identical, can indicate (1) inaccurate analytical procedures or (2) possible contamination from field, transport, or lab	F

GLENDA QC IDs

(Qc_ident.xls)

Code	Name	Description	Purpose	Field or Lab Flag
FSF	Spiked sample, field (final value)	One part of a routine field sample that is split in the field. This split (FSF) is fortified in field with known concentration of analyte and analyzed in the lab according to the specified method. The other split is analyzed without fortification	To evaluate the amount of target analyte existing in the fortified sample so that it can be compared to a "duplicate" sample (FSO) that should be identical in all ways except that it did not have addition of the subject analyte	F
FTB	Blank, field trip	Aliquot of reagent water or other neutral item (resin, filter) carried to field but NOT exposed to any field conditions, equipment, or additives. Handled, transported, and analyzed same as routine field sample	To isolate and evaluate potential contamination introduced to samples during sample transport. Used as QC for samples taken during an entire trip	F
IDLS	Instrument detection limit solution	Aliquot of target analyte(s) or reference material of known concentration analyzed only to calculate instrument detection limits	To calculate instrument detection limits	L
IFB	Blank, field instrument	Aliquot of reagent water or other neutral item (resin, filter) created in field and analyzed in field for background levels of the target analyte using the exact instrument to be used in subsequent analyses when conducted in field	To 1) test for instrument contamination or 2) verify results from calibration blank	F
ILB	Blank, lab instrument	Aliquot of reagent water or other neutral item (resin, filter) created in lab and analyzed for background levels of the target analyte using the exact instrument to be used in subsequent analyses	To 1) test for instrument contamination or 2) verify results from calibration blank	L
LCB	Blank, lab calibration	Aliquot of reagent water or other neutral material (resin, filter), possibly adjusted in pH, but without addition of any other reagents. Created in lab and analyzed using the exact lab instrument used to analyze routine field samples	To test and adjust instrument settings for "zero level" prior to, or during, sample analysis	L
LCM	Control solution, lab	Aliquot of reagent water or other neutral item (resin, filter) to which known quantity of target analyte is added. Contains same reagents, solvents, standards, etc. as routine field sample. Created in lab. Handled and analyzed same as routine field sample	To evaluate how closely reported result matches the "known" value added in lab. If not identical, can indicate (1) presence of subject analyte in environment below detection limits or (2) possible contamination from lab materials or equipment	L
LDB	Blank, lab dry	Aliquot with all reagents, internal standards, surrogates, and solvents to be added to routine field sample EXCEPT has no reagent water/neutral material. Created in lab. Handled and analyzed same as routine field sample	To evaluate possible contamination from reagents, standards, solvents, surrogates, etc. when reagent water is NOT present	L
LDF	Diluted sample, lab (final value)	One part of a routine field sample that is split in the lab. This portion (LDF) is analyzed according to the specified method after dilution. The other portion is analyzed without dilution	To assess precision of lab dilution techniques and to evaluate potential contamination in dilution material. Done by comparing to a "duplicate" sample (LDO) that should be identical in all ways except that it did not have addition of the diluting material	L
LDn	Duplicate, ("n"-th member from lab)	The "n"-th duplicate of a routine field sample. Created in the lab and treated same as routine field sample through all procedures	To evaluate lab variation in reported results when duplicate samples theoretically contain the same amount of the subject analyte. Provides precision assessment of results	L

GLENDA QC IDs

(Qc_ident.xls)

Code	Name	Description	Purpose	Field or Lab Flag
LFn	Spiked sample, lab (Final values - "n"-th member)	The "n"-th duplicate of the "Spiked Sample, Lab Final Value" (LSF). Used when routine field sample is split in two portions, one portion is analyzed with spiking (LSF). The LSF may be duplicated n times	To verify the results from Spiked Sample, Lab Final Value (LSF)	L
LIM	Interference check sample, lab	Solution with known concentration of a suite of target analytes. Created in lab and analyzed using exact instrument used to analyze routine field samples	To evaluate spectral interferences on the signature of one analyte caused by another analyte in the suite being tested. Only checks interference from instrumentation (does not check interference from matrix)	L
LIS	Internal standard, lab	Routine field sample fortified with addition of a known concentration of a standard compound which does not occur in the environment but which does have similar spectral signature during analysis	To enable quantification of the analyte(s) of interest by enhancing the magnitude of the spectral signature. Often used when target analytes are "detected but not quantifiable" without the lab internal standard	L
LMB	Matrix blank, lab	Unexposed sample collection medium (e.g., dry deposition plate) NOT carried to field. Handled and analyzed in lab same as routine field samples	To evaluate lab-induced contamination from sample collection media, reagents, and methods	L
LMn	Matrix spike multiple, lab	N-th duplicate of the lab matrix spike (LMS). Aliquot of routine field sample split from "true" sample. Fortified with a known concentration of target analyte(s). Created in the lab. Handled and analyzed same as routine field sample	To evaluate matrix effect on routine field samples. Checks interference both from matrix and laboratory instrumentation. Provides precision assessment of LMS	L
LMS	Matrix spike, lab	Aliquot of routine field sample split from "true" field sample. Fortified with a known concentration of target analyte(s). Created (ie. split and fortified) in the lab. Handled and analyzed same as routine field sample	To evaluate matrix effect on routine field samples (e.g., does organic content of matrix sorb any of the spiked material). Checks interference both from matrix and laboratory instrumentation	L
LPB	Blank, lab procedural	Aliquot containing all reagents, internal standards, surrogates, and solvents in same volumes used to process/analyze RFS. Created in lab. Contains no field collection media (XAD resin) or dummy blank matrix (reagent water). Handled/analyzed same as RFS	To evaluate possible contamination biases from the reagents and solvents used in the process without the interfering presence of sample collection media or dummy sample matrix	L
LPC	Performance check solution, lab	Aliquot containing a solution with known concentrations of target analyte(s), surrogate(s), and/or internal standards used to evaluate the performance of an instrument with respect to a defined set of criteria	To evaluate the performance of a lab instrument with respect to a pre-defined set of criteria	L
LPn	Procedural spike duplicate, lab	N-th duplicate of the lab procedural spike (LPS). Aliquot of reagent water or other neutral item containing all reagents, solvents, standards, surrogates as routine field sample. Fortified with known quantity of target analyte. Created in lab.	To evaluate the accuracy of extraction and analysis of target analytes in the absence of field matrix interferences. Also to evaluate potential contamination from extraction solvent. Provides precision assessment of LPS	L
LPS	Procedural spike, lab	Aliquot of reagent water or other neutral item (filter, resin) containing all reagents, solvents, standards, surrogates as routine field sample. Fortified with known quantity of target analyte. Created in lab. Handled & analyzed same as rout. field sample	To evaluate the accuracy of extraction and analysis of target analytes in the absence of field matrix interferences. Also to evaluate potential contamination from extraction solvent	L

GLENDA QC IDs

(Qc_ident.xls)

Code	Name	Description	Purpose	Field or Lab Flag
LRB	Blank, lab reagent	Aliquot of reagent water or other neutral item (resin, filter) containing all reagents, internal standards, surrogates, and solvents used to process/analyze routine field samples. Created in lab. Handled and analyzed same as routine field sample	To identify and/or evaluate potential contamination introduced to samples from any source in the laboratory	L
LRS	Reference sample, lab	Reference sample of the same matrix as a routine field sample. The reference sample has a mean value, established over time, which is specific to the lab running the analysis. Created in the lab. Handled and analyzed same as routine field sample	To evaluate performance of lab equipment against known concentrations of target analyte. (Similar to standard solutions, except created by lab rather than some external entity like EMSL or NIST)	L
LSB	Blank, lab solvent	Aliquot containing solvents used to process/analyze routine field sample. Does not contain reagent water, standards, surrogates, or other reagents. Created in lab. Handled and analyzed same as routine field sample	To isolate and evaluate possible contamination introduced to routine field samples from solvents	L
LSD	Spike duplicate, lab	Routine field sample which is analyzed according to the analytical method, and is the 2nd of two independent aliquots of the sample taken for fortification with target analyte(s)	To assess lab precision on sample matrix and to assess matrix variability	L
LSF	Spiked sample, lab (final values)	One part of a routine field sample that is split in lab. This split (LSF) is fortified in lab with known concentration of analyte and analyzed in the lab according to the specified method. The other split is analyzed without fortification	To evaluate the amount of target analyte existing in the fortified sample so that it can be compared to a "duplicate" sample (LSO) that should be identical in all ways except that it did not have addition of the subject analyte	L
LSS	Surrogate spike, lab	Routine field sample fortified with a surrogate of the target analyte(s) which mimics the target analyte but which is not normally found in routine field sample. Handled and analyzed same as routine field sample	To evaluate bias in the sample matrix (usually as a function of percent recovery of the surrogate)	L
LTB	Blank, lab trip	Aliquot of reagent water or other neutral item (resin, filter) created in lab. Not carried to field. Handled, transported, and analyzed same as routine field sample	To isolate and evaluate potential contamination introduced to samples during lab processing/analysis. Used as QC for samples taken during an entire trip	L
LVM	Calibration verification solution, lab	Aliquot of reagent water or other neutral item (resin, filter) to which known quantity of target analyte is added. Created in lab. Analyzed using exact instrument used to analyze routine field samples	To verify calibration reached with LCM sample	L
MDLS	Method detection limit solution	Standard solution containing known quantities of target analytes in units comparable to the routine field sample. Standard solution created in accordance with 40 CFR, Part 136, Appendix B (e.g., Ultra 10 congener and pesticide/TNC/atrazine standards)	To establish concentration range of analytical equipment where quanitification is reliable	L

GLENDA QC IDs

(Qc_ident.xls)

Code	Name	Description	Purpose	Field or Lab Flag
MSB	Matrix spike blank, lab	Aliquot of same sample matrix as RFS (though not collected in field for this project) with historically known/established concentration of target analyte(s). Analyzed using exact instrument used to analyze routine field sample	To determine background levels of analytes in matrix used to process Laboratory Procedural Spike (LPS). The MSB is a historically "clean" environmental sample used as an LPS	L
RFS	Routine field sample	Sample or aliquot collected in the field. Routine field samples are the actual, "real" samples taken in the field. Not a quality control sample of any kind	To assess the environmental "level" of the subject analyte, species of interest, or other collected entity	F
SFB	Spiked blank, field	Aliquot of reagent water/solvent used in routine field sample extraction. Includes internal standards and surrogates with known level of target analytes added in the field. Not processed on adsorption media. Handled, transported, and analyzed same as RFS	To evaluate recovery of target analytes without interference from adsorption media	F
SFDn	Sequential duplicate ("n"-th member from field)	The "n"-th duplicate of a routine field sample (RFS). Taken at the SAME PLACE but somewhat LATER TIME as RFS, using the same gear, and treated same as RFS through all field, transport, and lab procedures	To evaluate field sampling and matrix variability when duplicate samples theoretically contain the same amount of the subject analyte. The sample is taken at different time than RFS when the method or conditions make it difficult for true duplication	F
SLB	Solvent spike, lab	Aliquot of solvent at same volume used in routine field sample extraction, includes internal standards/surrogates, fortified in lab with known levels of target analytes. Not processed on adsorption media. Handled and analyzed same as routine field sample	To evaluate recovery of target analytes without interference from adsorption media	L
SRHn	Standard check, high ("n"-th member from field)	The n-th aliquot of solution with known high concentration (e.g. 80%) of target analyte. Carried to field and exposed to same conditions/equipment as routine field sample. Handled, transported, and analyzed same as routine field sample	To evaluate how closely reported result matches the "known" value. If not identical, can indicate (1) inaccurate instrumentation at high end of reporting spectrum or (2) possible contamination from field, transport, or lab	F
SRLn	Standard check, low ("n"-th member from field)	The n-th aliquot of solution with known low concentration (e.g. 20%) of target analyte. Carried to field and exposed to same conditions/equipment as routine field sample. Handled, transported, and analyzed same as routine field sample	To evaluate how closely reported result matches the "known" value. If not identical, can indicate (1) inaccurate instrumentation at low end of reporting spectrum or (2) possible contamination from field, transport, or lab	F
SRM	Reference material, standard	Aliquot containing a certified value of the target analyte (aliquot usually from NIST). Never carried to field. Analyzed same as routine field sample	To evaluate how closely reported result matches the "certified" value (ie, check on accuracy/precision or calibration of the measurement system). If values are not identical, can indicate (1) inaccurate analytical procedures or (2) possible contamination	L